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PACIFIC TELESIS
Group-Washington

ORIGINAL
FILE

April 21, 1992

Donna R. Searcy
Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Dear Ms Searcy:

Re: *CC Docket No. 92-24 - Local Exchange Carrier Line Information Database*

On behalf of Pacific Bell, please find enclosed an original and six copies of its "*Direct Case*" in the above proceeding.

Please stamp and return the provided copy to confirm your receipt. Please contact me should you have any questions or require additional information concerning this matter.

Sincerely,

Jo Ann G Riley

Enclosures

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC

RECEIVED

APR 21 1992

Federal Communications Commission
Office of the Secretary

In the Matter of	)	
	)	
Local Exchange Carrier Line Information Database	)	CC Docket No. 92-24
	)	

DIRECT CASE OF PACIFIC BELL

Pursuant to the Order Designating Issues for Investigation released by the Commission on March 20, 1992 ("Designating Order"),[1] Pacific Bell submits this Direct Case showing that its tariff for Line Information Database (LIDB) Service is just and reasonable and should be permitted to remain in effect unchanged.

I. Description of LIDB Query Service

The Common Carrier Bureau (the "Bureau") invites interested parties to address whether the tariffs for LIDB service "lack sufficient detail for potential customers to be certain of what service they are receiving." Designating Order, p. 2. The Bureau takes note of arguments that LIDB tariffs should contain the following information:

> the frequency, nature, and priority of database updates, and the LEC liability for erroneous information in the database; to the extent that carriers reference technical publications, the dates of the latest

1 Local Exchange Carrier Line Information Database, CC Docket No. 92-24, Order Designating Issues for Investigation, DA 92-347, released March 20, 1992.

> revisions to any referenced technical publication should be reflected in the tariff; liability for fraudulent use of calling cards; "call gapping" procedures; and additional technical parameters for processing database queries.

Id.

It would not be appropriate or necessary to specify the frequency, nature, and priority of database updates in the LIDB tariff. If this information were incorporated in tariffs, it would encumber LECs and the Commission with the necessity of filing and reviewing tariff revisions every time update methods and procedures were improved or changed. Pacific fully discloses this information to customers before they are provided with LIDB service. At present, Pacific's LIDB is updated six days a week (Monday through Saturday). High priority updates, which include the disablement of a number due to fraudulent use and cards reported as lost, are completed in real time, via terminal input to the Database Administration System (DBAS) and data link transmission to the LIDB. Medium and low priority updates are batch-processed at the end of the update day and are transmitted by the DBAS to the LIDB. Pacific's customers would be fully informed of any changes to these methods and practices. Additional technical parameters for processing database queries, such as response time, are in the technical publications referred to in Pacific's tariff.[2]

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2 See Pacific Bell Tariff F.C.C. No. 128, §§6.1.3(A), 6.2.5(A). Pacific's tariff includes the date of the latest revisions to these publications. See id., p. 17.3.1.

Because Pacific relies on the LIDB for validation of intraLATA calls, it has the same interest as LIDB customers to prevent fraudulent use of calling cards and prevent erroneous information from being included in the database. It would not be appropriate for Pacific to be liable to carriers for damages resulting from erroneous information or fraud.[3] First, to compensate for the assumption of such liability, Pacific's rates for LIDB service would have to be increased. The Commission has recognized that increased liability may impose an unnecessary burden upon the LEC's ratepayers in the form of increased rates, since they would ultimately bear the costs associated with greater liability.[4] Second, the LIDB contains millions of card numbers and billing numbers, and will process over a million queries per day. With these enormous volumes, it is simply inevitable that despite Pacific's best efforts some fraud will occur and some erroneous information will make its way into the database. Imposing unlimited liability on Pacific for such occurrences would require charging unacceptably high rates to all LIDB customers, even though most of them would clearly prefer a high volume, low price service. For instance, if Pacific had to absorb the cost of charges that were fraudulently billed, the price of LIDB service would have to be raised to include an

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3 Pacific would have liability for a refund of charges to customers in certain instances. See Pacific Bell Tariff No. 128, §2.1.3.

4 Annual 1985 Access Tariff Filings, 2 FCC Rcd 1416, 1423 (1987).

uncollectible factor. Finally, IXCs themselves are as well positioned to detect fraud as Pacific, since they know the originating and terminating numbers of calls associated with LIDB queries.[5] Sometimes the originating and terminating number are passed to the LEC in the IXC's LIDB query; sometimes, however, they are not, and only the IXC is in a position to know that fraud may be occurring.

The automatic call gapping feature of Pacific's STP is discussed in the technical publications referred to in Pacific's tariff.[6] During periods of congestion, the STP screens calls in a nondiscriminatory fashion. The call gap feature in the STP is not originator specific. In other words, the STP will not discriminate between messages sent by individual carriers; the STP will issue network management messages to all interconnectors, including Pacific, to slow down calls as necessary. Once an IXC's traffic enters Pacific's network, it is treated in exactly the same way as Pacific's own intranetwork traffic.

II. Technical Parameters for the CCS Interconnection Link

The Bureau invites parties to address "whether tariffs for CCS interconnection links should include a similar level of detail regarding technical parameters" as the parameters

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5 An unusually high number of calls to or from a number in a short time is considered an indication that fraud may be occurring.

6 See §§6.2.5(A) and 6.1.3(A).

specified for 56kbps special access lines. Designating Order, p. 2. Pacific's tariff for CCS interconnection provides the same level of technical detail as its special access tariff.[7]

III. Rate Levels

Pacific identifies its costs using a four-step approach. First the investment directly utilized in supplying a service is identified by a special study--typically, a model, specific estimates by engineering experts, or an extensive, comprehensive cost study. Second, historical factors are applied to the investment so identified to determine the associated Land, Building, Power, and Common investments that are needed to support the direct investments used to supply to service. Third, cost factors specifically developed for each investment account are used to identify the recurring costs (capital, repair and maintenance, general administration) of each service. Finally, the appropriate overhead loadings are determined for each service.

A. Appropriateness of Using CCSCIS to Develop Rates for Common Channel Signaling Services

The CCSCIS model was used to identify Pacific's direct unit investments for the LIDB Transport and LIDB Query elements. It was also used to develop the direct unit investment of the STP Port element of SS7 Interconnection. As described in

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7 Compare Pacific Bell Tariff F.C.C. No. 128, §§6.1.3(A) and 7.2.8(B).

Attachment A, the CCSCIS model was developed specifically for use with common channel signaling services. The CCSCIS model uses the same approach as the SCIS model, which has been used for many years to develop the direct costs of multifrequency signaling services. Both models assign the investment of shared switching equipment to specific services based on the utilization of those services relative to the capacity of specific hardware required to supply to service. Thus, ultimately the model ascribes costs to cost causers. The logic of such an approach has been accepted for many years and is, basically, beyond challenge as a fair means of apportioning shared costs.

As described in Transmittal No. 1557, the LIDB Query Charge also recovers the costs of the Database Administration System (DBAS). The unit investment for the DBAS was obtained from a company study. This study allocates total DBAS investment to LIDB based upon LIDB's relative utilization of the investment capacity. Total investment is divided by volumes to arrive at unit investment.

The model was not used to develop the cost of the SS7 Link element. This element consists of a 56kbps link (including a D4 channel bank and associated distributing frame) and a DSO-A card. The equipment cost of the link is uniquely identifiable; no allocation is necessary. Transmittal No. 1562 explained how the direct unit cost for the SS7 Link was determined.

B. Total Investment Underlying the Four Rate Elements

Attachment B provides the total investment underlying each of the four rate elements and identifies the Part 32 accounts in which these investments are recorded. See Designating Order, p. 2.

C. Factors Applied to Investment

Once the investment associated with the SS7 Interconnection service was identified, a separations factor was applied to ensure that only the interstate portion of the investment is recovered in interstate rates.

Annual capital and expense cost factors were then added to the investment for all elements. The capital cost factors convert the investment dollars into annual capital costs, i.e., depreciation, cost of money, and income taxes. These factors are specific to each account and reflect the FCC prescribed rate of return for Pacific and the FCC prescribed depreciation rates for each respective investment account.

The operating expense factors identify the repair and maintenance (Account 6220) and general administrative costs (Accounts 6533, 6611, 6612, 6613, 6621, 6622, 6623, 6721, 6723, 6724, 6726, 6728, 7240, 7340) Pacific expects to incur on a recurring basis for the service rate elements. The repair and maintenance factors reflect the historic cost levels (per dollar of investment) for these job functions. The general administrative costs reflect the historic cost levels (per dollar of capital plus repair and maintenance cost) for job functions and miscellaneous expense recorded in these accounts. The factors for developing the repair and maintenance costs are specific to individual investment accounts. The factors for general administrative costs are specific to groups of similar services. The capital cost factors are appropriate because they are computed using FCC authorized rates of return and depreciation rates; the operating cost factors are reasonable because they are developed utilizing Pacific's historic operational experience.

The capital and operating cost factors applied to each account for the link element of the SS7 Interconnection service were shown in the workpapers to Transmittal No. 1562. The CCSCIS program applied the factors to the STP Port element of SS7 Interconnection service and both LIDB service elements. These cost factors were also explained in Transmittal Nos. 1557 and 1562. The direct unit costs represent the price floor for each of the elements.

As described below, overhead loading factors were then developed and applied to establish the maximum rate level for LIDB Transport and LIDB Query service.

The overhead loading factors for the LIDB Query and LIDB transport elements was 5.535. To calculate this loading factor, the 1990 Revenue Requirement for Interstate Switched Access (restated for an 11.25% rate of return) was divided by the corresponding 1990 interstate volumes to derive a unit revenue requirement. This number was then divided by the unit incremental cost of switched access to arrive at the loading factor. Workpaper II, page 8 of Pacific's Transmittal No. 1557 showed how this factor was calculated.

This overhead loading factor approximates the ratio of the average composite rate for the traffic sensitive basket relative to its composite unit incremental cost. This approach to identifying overheads for LIDB is reasonable because it ensures that rates for LIDB do not exceed average rates for other services in the traffic sensitive basket relative to the unit direct cost for LIDB. In other words, the maximum price to cost relationship for LIDB approximates the price to cost ratio for similar products that the Commission has previously examined and allowed or directed to take effect. Attachment A to Transmittal No. 1557 cross-references this factor to ARMIS.

Consequently, the rates for LIDB service meet the requirements established by the Commission for new services in Docket 89-79: (1) rates established for a new service must pass the net revenue test, and (2) rates should not exceed direct costs plus appropriate overheads.[8]

D. Restructuring Requirements

The Designating Order requires that Pacific demonstrate how its SS7 Interconnection service rates comply with Part

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8 Amendments of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for Open Network Architecture, Policy and Rules Concerning Rates for Dominant Carriers, CC Docket No. 89-79, 87-313, Report and Order & Order on Further Reconsideration & Supplemental Notice of Proposed Rulemaking, FCC 91-186, released July 11, 1991, paras. 39, 44.

61.49(f) of the Commission's Rules. Part 61.49(f) requires tariffs for restructured services to contain adequate detail to make adjustments to each affected API and SBI required by §§61.46(c) and 61.46(d). Basically, these sections require that existing rates be converted into rates of "equivalent value." Attachment C demonstrates compliance with these rules.

IV. Conclusion

For all of the foregoing reasons, Pacific's tariffs for LIDB Service and SS7 Interconnection should be permitted to remain in effect as filed.

Respectfully submitted,

PACIFIC BELL

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Date: April 21, 1992

ATTACHMENT A

COMMON CHANNEL SIGNALING COST INFORMATION SYSTEM (CCSCIS)

The Common Channel Signaling Cost Information System (CCSCIS) is appropriate for developing the costs associated with services which use common channel signaling (CCS) equipment. The CCSCIS model is an engineering based, bottom up cost calculator that is supported by the equipment manufacturers, developed and maintained by Bellcore with the cooperation of the manufacturers and used by Pacific to develop direct costs of all common channel signaling services in both the state and federal jurisdictions.

1. CCS Networks and How They Are Used to Provide CCS Services

CCS services are provisioned by sending signaling messages between Service Switching Points (SSPs) (switches with signaling capabilities), or between SSPs and Service Control Points (SCPs) (data bases with network control information). These messages, which are constructed using rules defined by the SS7 protocol, carry information used by the SSPs to route or control calls. The messages travel between signaling points (SSPs and SCPs) on signaling links (facilities which carry only SS7 messages) and through Signal Transfer Points (STPs) (packet switches which route the signaling messages).

Pacific uses CCS networks to provide many services including basic intraLATA and access call services, as well as vertical services. For basic intraLATA calls, SS7 messages are sent between the originating switch, any intermediate tandem switches, and the terminating switch, using signaling links connecting the switches to STPs. Basic access call set-up signaling uses the same equipment, but it also uses links between an STP and a signaling point of interface (connection to an interexchange carrier's CCS network).

Vertical services which use CCS networks can be classified as either circuit-based services, or data base services. For circuit-based services such as CLASS, signaling messages are sent directly from the originating switch to the terminating switch by way of STPs and the connecting signaling links. For SS7 data base services, a switch requests information from an SCP by sending a message or query to the SCP. This message may pass from the switch to a local (LATA or state) STP and then directly to the SCP, or it may pass through two STPs (local and regional) before it is transferred to the SCP. If the query is sent to an SCP owned by another company, the query traverses multiple links and STPs and at least two different CCS networks before it reaches the destination SCP.

Each element in a CCS network can be used for a different mix of services. Signaling links between SSPs and STPs, together with the associated link termination equipment on the STP, are used for basic intraLATA and access services, as well as for data base and circuit-based services. Signaling links between local and regional STPs and associated STP link termination equipment are used for data base services, as well as for access trunk signaling, if connection to the SPOI is through the regional STP. Signaling links between regional STPs and SPOIs and associated STP link termination equipment carry interregional data base queries and access trunk signaling messages. Links from STPs to SCPs and associated STP link terminating equipment are used only by services provided by the SCP.

In addition, STPs may provide additional functions for some services. Global Title Translation (GTT, or SS7 address translations) or Gateway Screening (screening of messages entering from other networks) may require additional processing equipment (with the associated cost implications) on an STP. GTTs are used for data base queries and some circuit-based messages. Gateway screening is required for intercompany trunk signaling messages and interregional data base queries.

As can be seen from the preceding, most CCS associated equipment and facilities have multiple service based functionality. As such, the shared use of equipment and facilities must be accounted for to appropriately determine the cost of providing a specific service.

2. Requirements for a CCS Service Cost Model

The principles incorporated into a CCS service cost model must be appropriate to solve the problem which arises from the need to cost equipment, with partial and varying usage, that is shared by a changing mix of services.

The first requirement of a CCS service cost model is to apply an engineering based "bottom up" costing approach to address the problems associated with equipment that is shared by many different services and which is used in varying degrees and in different ways. Determining the cost of a CCS service, therefore, requires detailed analyses of each part of the network, and a determination of how it is used by the various services. The objective of the model should be to develop basic common denominators of cost that can be combined in various ways to obtain total service costs for a specific service application.

The second and third requirements are to produce forward-looking costs which are long term and stable. The requirement for forward looking costs is mandated by the economic need to associate the cost of service with current and/or projected costs that are stable and which can, therefore, accommodate the rapid evolution of CCS networks, and the services which use them.

The need for usage-based costing is the fourth requirement. Wherever there is shared equipment, the costs of such equipment must be determined as a function of the capacity which limits its usage. When this capacity is exhausted, investments in additional equipment will be required. Therefore, the each unit of capacity, a cost based on the investments required for that capacity should be determined. Conversely, for equipment with large capacities, the cost should be a function of the partial and varying utilization of the capacity. This process ascribes costs to the cost causers, which is a basic tenant of this Commission.

3. Description of CCSCIS

The Common Channel Signaling Cost Information System (CCSCIS) contains engineering models of SCPs, STPs, and a CCS link network. Each model identifies equipment costs associated with the least common denominators of cost, or the basic investment drivers. These costs can be used with other information to determine costs of switched or network based services. For services uing only the CCS network, CCSCIS provides the methodology for combining the system outputs to determine the costs of service.

CCSCIS currently contains seven separate equipment models: three Signal Transfer Point (STP) models, three Service Control Point (SCP) models, an SS7 link model, and an aggregation model. The current system release contains models for STPs manufactured by three different vendors: AT&T Technologies, DSC Communications Corp., and Northern Telecom Inc. The modeled SCPs include two versions of SCPs constructed with Digital Equipment Corporation (DEC) according to Bellcore's suggested design, and a model of an Ericsson SCP. The Link Model examines several types of CCS links, each of which can use many different transmission technologies. The Aggregation Model combines the outputs of each model to determine combinations of unit investments and costs useful to calculate service costs. New models are constructed as new types of CCS equipment are installed. Additionally, equipment prices are regularly updated, and models are revised to include additional functions and engineering changes as warranted.

The outputs of CCSCIS models represent the results of detailed analyses of equipment engineering and functionality. The methodology uses the required principles of CCS cost models described above, as well as a standard process that is not dependent on equipment type or vendor. Following is a step-by-step description of the CCSCIS model development process.

The first step in the development of a CCSCIS model is to obtain engineering data and technical information from vendors or network architects. This information includes: long range product development and delivery schedules, detailed technical descriptions of equipment architecture, current hardware engineering rules and engineered capacities, available engineering and pricing tools, detailed descriptions of any service-specific functions, discounting schemes and resource consumptions of various services or functions.

Once the functional characteristics of each piece of equipment are determined, the cost categories represented by the functions and the cost drivers of each category are identified and the equipment is "partitioned". That is, each piece of equipment is analyzed and mapped into one or more cost categories by examining the engineering rules and equipment functions. Equipment in each category are then mathematically analyzed to determine the cost of the category.

Costs of equipment categories are translated into unit investments using the limiting capacities of the equipment and algorithms that account for: multiple investments within a category at varying times during the study period, changing equipment capacities, sharing of equipment and multiple functions of equipment. The effects of partial and varying utilization of the equipment is also accommodated under various scenarios by examining the effects of service demands on each equipment category.

Models in CCSCIS differ by equipment type and vendor, but the user inputs required can be classified into four categories. The first defines study parameters. Examples include: cost methodology (average or marginal), study period, vendor discounts, cost of money, date of equipment prices to be used and whether material or EF&I equipment prices should be used. The second category pertains to cost and investment data. These include: annual charge factors, link lease expenses, capitalized RTU fees or other investments to be included and facility investments, by account (per mile and per termination). The third category relates to information about the equipment or network. For example: information about the configuration and optional equipment, the numbers of links or link terminations, the number of miles and terminations of links (by link type) and the engineered occupancy of links. For some of the above information, data which is specific to each study area is required. The final category includes information required for utilization calculations. This data is compiled for each of several study years in the study period, as well as for each study area and link type. It includes service demands, number of links or STP link terminations, and, for shared processors on STPs, switch utilization of the processor.

A CCSCIS model study can include calculation of costs for a specific piece of STP/SCP equipment, or for all or part of a CCS link network. Study outputs incorporate the unit investments or costs of individual components or functions of the equipment. Output reports take into accounts: the cost of transporting one octet (8 bits) of an SS7 message on various types of links, the cost of processing one octet of a message by STP link termination equipment, the cost of processing special types of messages (data base queries of various services, global title translations, and gateway screening), the costs of storing data base records in SCPs and the costs of terminating SS7 links on STPs.

Development of CCS based service costs requires the combination of costs of each piece of CCS equipment used for providing the service. If multiple STPs or SCPs are used to provide the service, weighted averages of these costs can be calculated with the CCSCIS Aggregation Model using weights derived from user data entered in the individual studies. The costs of each type of equipment (regional or local STPs, SCP, or links) are combined using network parameters entered by users or derived from input data. The outputs of the aggregation process are combined unit investments and unit costs (where the latter are unit investments multiplied by annual charge factors) of SS7 messages used for circuit-based services, data base services, or trunk signaling. Data base service outputs represent either costs of equipment used for intraregional queries, or for either incoming or outgoing interregional queries. These unit cost outputs are transformed into costs for services when they are multiplied by the numbers of units used (octets, GTTs, queries, etc.) and summed over cost categories.

4. Summary

The preceding discussion demonstrates the complexity of CCS services and the attendant need for a detailed costing mechanism to develop CCS based service costs: a mechanism that is engineering oriented and which uses proven economic theory to produce the individual costs of technology-specific CCS network functions; a mechanism that solves the problem of assigning the costs of shared CCS equipment to individual services, using a methodology which guarantees that each service is assigned equal costs for equal use of resource. Inasmuch as CCSCIS embodies all these elements, it is an appropriate model for calculating the costs for common channel signaling based services.

ATTACHMENT B

LINK - LIDB INVESTMENT
PART 32 ACCOUNTS

(AMOUNTS IN DOLLARS)

RATE ELEMENTS	TOTAL INVESTMENT BY ACCOUNT
A. SS7 INTERCONNECTION	
1. SS7 LINK	
2212	$41,460
2232	$5,312
2410	$1,555
2111	$521
2121	$5,603
	$54,451
2. STP PORT	
2232	$114,081
2212	$157,312
	$271,393
B. LIDB	
1. QUERY	
2212	$804,571
2211	$1,777,547
2232	$205
	$2,582,323
2. TRANSPORT	
2232	$8,006

ATTACHMENT C

RESTRUCTURED SERVICE REQUIREMENTS

Demonstration of compliance with Parts 61.46(c) and 61.47(d) was accomplished through the following steps:

(1) Because Pacific's original SS7 Interconnection tariff proposed that the existing Nonrecurring trunkside charge be applied for CCS interconnection, the 1990 base period demand for the NRC trunkside was recast to the remapped SS7 NRC rate element filed in Transmittal No. 1562. As the calculations on Worksheet 1 show, the net effect was a movement of 19 inward movement links from the NRC trunkside rate element to the SS7 NRC rate element.

In compliance with the Commission's December 24, 1991 order, the following three additional charges were developed and filed in Transmittal No. 1562: SS7 Link Recurring, SS7 Link Mileage, and SS7 Port Recurring. Because no comparable 1990 demand existed for these elements, estimated values were developed and are included in the "recast demand" column on Worksheet 1.

(2) The API and SBI equations required by Parts 61.46(a) and 61.47(a) were populated with the pre-restructured rates (p_{t-1}), the restructured rates (p_t) and the 1990 recast demand quantities (v_i) shown on Worksheet 1. Worksheet 2 shows the resultant API_t and SBI_t based on the restructured rates.

(3) To demonstrate that the restructured rates are of equivalent value to the pre-restructured rates at the basket and band level, the affected API and SBI have been summarized on Worksheet 3. As may be noted, the APIs and SBIs are identical; therefore, the rates are equivalent and Pacific has complied with the requirements for restructured services.

WORKSHEET 1

PACIFIC BELL
RECASTING OF 1990 BASE PERIOD DEMAND REGARDING
SS7 INTERCONNECTION RESTRUCTURED RATE ELEMENTS

Local Transport Band*	1990 Actual Demand	1990 Recast Demand
Trunkside-NRC	44,917	44,898
Restructured Elements:		
SS7 Link-NRC	N/A	19
SS7 Link-Recurring	N/A	9#
SS7-Mileage	N/A	80#
STP Port-Recurring	N/A	19#

* For those rate elements affected by SS7 interconnection restructure.

Estimated demand value.

CAH364
4/17/92

Pacific Bell

Worksheet 2

SBI and API Development 17-Apr-92

Switched Access

Rate Element Description	(A) RE-CAST BASE PERIOD DEMAND	(B) EXISTING RATES 11/18/91 (TRANS. #1551)	(C) RESTRUC. RATES 1/1/92 (TRANS. #1562)	(D) REVENUE @ RATES FROM 11/18/91 (A) * (B)	(E) API v (D)/BsktRevs	(F) RE-CAST API	(G) SBI v (D)/BndRevs	(H) RE-CAST SBI
LOCAL SWITCHING								
LS1 FGA & B PREMIUM	4,642,409,436	0.00930	0.00930	43,174,408	0.0897	94.64	0.1693	98.07
LS2 FGC & D PREMIUM	18,630,586,710	0.00970	0.00970	180,716,691	0.3754		0.7085	
LS1 FGA & B NON-PREMIUM	167,351,064	0.00430	0.00430	719,610	0.0015		0.0028	
EQUAL ACCESS COST RECOVERY	1,791,744	16.99000	16.99000	30,441,731	0.0632		0.1194	
LOCAL TRANSPORT								
PREMIUM TERMINATION	23,272,996,146	0.00719	0.00719	167,332,842	0.3476		0.7953	89.98
PREMIUM MILEAGE(MOU*10)	232,729,961,460	0.00014	0.00014	32,582,195	0.0677		0.1549	
NON-PREMIUM TERMINATION	167,351,064	0.00324	0.00324	542,217	0.0011		0.0026	
NON-PREMIUM MILEAGE(MOU*10)	1,673,510,648	0.00006	0.00006	100,411	0.0002		0.0005	
DA TERMINATION	39,889,801	0.00380	0.00380	151,581	0.0003		0.0007	
DA MILEAGE (MSGS*3.03)	120,866,097	0.00017	0.00017	20,547	0.0000		0.0001	
LINE SIDE (FGA) NRC	2,517	312.00000	312.00000	785,304	0.0016		0.0037	
TRUNK SIDE (FGB, FGC, FGD) NRC	44,898	198.00000	198.00000	8,889,804	0.0185		0.0423	
SS7 LINK RECURRING	9	0.00000	196.50000	0	0.0000		0.0000	
SS7 LINK NON-RECURRING	19	198.00000	590.00000	3,762	0.0000		0.0001	
SS7 LINK MILEAGE	80	0.00000	0.60000	0	0.0000		0.0000	
STP PORT RECURRING	19	0.00000	1325.00000	0	0.0000		0.0000	
INFORMATION SURCHARGE								
PREMIUM MOU	23,272,996,146	0.00030	0.00030	6,981,899	0.0145		0.4393	99.07
NON-PREMIUM MOU	167,351,064	0.00010	0.00010	16,735	0.0000		0.0011	
DA-PER CALL	39,889,801	0.22300	0.22300	8,895,426	0.0185		0.5597	

TOTAL P.03